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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/683,002	11/07/2001	Jozef Herman Peter Bastiaens	08CN07467-1	5002

23413 7590 11/08/2002

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EXAMINER

LEE, RIP A

ART UNIT	PAPER NUMBER
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1713

DATE MAILED: 11/08/2002

3

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	09/683,002	BASTIAENS ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Rip A. Lee	1713	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7, 10, 14, 16, 17, 19-21, 23, 24 and 26-30 is/are rejected.
- 7) ☒ Claim(s) 3-5, 8, 9, 11-13, 15, 18, 21, 22 and 24-26 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). ____   |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>2</u> | 6) <input type="checkbox"/> Other:  |

## DETAILED ACTION

### *Claim Objections*

1. Claims 3, 4, 21, 24, and 25 are objected to because of the following informalities: Change all components containing "nylon" to "polyamide" or use IUPAC nomenclature, *i.e.*, polycaprolactam, *etc.* Appropriate correction is required.
2. Claim 5 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. It is not clear whether the weight percentage of components is based on the total composition or based on the 30-65 % weight percentage of polyamide set forth in the parent claim. Furthermore, the sum of components recited in the claim encompasses the range of 28-68 wt%. This range lies outside the 30-65 wt% range of claim 1.
3. Claim 26 is objected to because of the following informalities: The claim is drawn to a "reaction product" of the recited components. It is not clear what is meant by the term since the claimed composition contains inert filler without use of coupling agent. In this case, there is no reaction between any of the components. Appropriate correction is required.
4. Claim 26 objected to under 37 CFR 1.75 as being a substantial duplicate of claim 1. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim

to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. Claims 1-4, 6, 14, 16, 17, 19, and 26-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,109,052 to Kasai *et al.* in view of U.S. Patent No. 4,038,343 to Yonemitsu *et al.*

Kasai *et al.* discloses a composition comprising 25-70 wt % of a polyphenylene ether, 25-70 wt % of a polyamide, and 2-25 wt % of a mixture of hydrogenated and non-hydrogenated vinyl aromatic/conjugated diene, wherein the ratio of hydrogenated to non-hydrogenated polymer is 1/4 to 4/1 (claim 1). There can be added to the composition filler such as carbon fiber or carbon black such that the properties of the present invention are not impaired (col. 14, lines

51-54). The polyphenylene ether is obtained by copolymerizing 2,6-dimethylphenol with 2,3,6-trimethylphenol (claim 6). The reference is silent with respect to the constitution of said copolymer, but it can be gleaned that 2,6-dimethylphenol is the major component.

Yonemitsu *et al.* discloses a general method for preparing PPE copolymer comprised of 50-98 mole % 2,6-dimethylphenol and 2-50 mole % 2,3,6-trimethylphenol (Example 1). This PPE copolymer contains 2,6-dimethylphenol as the major component, and therefore, one having skill in the art would have found it obvious to use the PPE of Yonemitsu *et al.* in the composition of Kasai *et al.* to arrive at present claims 1 and 26. Such a substitution is obvious because it is suggested in the primary reference.

Use of a material having the property recited in claim 2 is obvious because Kasai *et al.* state that PPE copolymers of the invention display an intrinsic viscosity of 0.30-1.5 dL/g in CHCl<sub>3</sub> at 30 °C (col. 5, line 33). Furthermore, Yonemitsu *et al.* indicate that the PPE copolymer exhibits an intrinsic viscosity of 0.55 dL/g (CHCl<sub>3</sub>, 25 °C). Claims 3, 4, 6, 14, 16, 17, 19, and 27-30 are obvious in view of the disclosure of Kasai *et al.* The reference teaches use of polyamide resins such as nylon-6, nylon-6,6, or a copolymer thereof (claim 8). Non-hydrogenated vinyl aromatic/conjugated diene block copolymers contain styrene units, butadiene units, and isoprene units (col. 9, lines 9-18), *i.e.*, styrene-butadiene copolymers and styrene-isoprene copolymers (see also Table 1). Other impact modifiers may be used in an amount of 0.05-5 parts by weight (col. 11, lines 14-17 and 33). The composition also contains maleic acid or maleic anhydride in an amount of 0.05-10 parts by weight (col. 13, lines 49 and 63). The overall composition is prepared by melt kneading (col. 14, line 5). According to the inventors, the composition has utility as a material for exterior trims and board part of automobiles (col. 29,

lines 18-20). In conclusion, one having ordinary skill in the art would have found it obvious to use the components described above because their use in conductive polyphenylene ether-polyamide compositions is fully disclosed in Kasai *et al.*

8. Claims 1-3, 6, 10, 14, 16, 17, 19-21, 26, 27, 29, and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,977,240 to Lohmeijer *et al.* in view of Yonemitsu *et al.*

Lohmeijer *et al.* discloses a composition comprising a polyphenylene ether-polyamide base resin and 1-7 parts by weight of electroconductive carbon black filler (claim 1). Generally, greater than 35 % of the base resin is made from polyamide (col. 7, line 33), and Example 1 shows that the base resin contains about 36 wt% of polyphenylene ether and about 48 wt% polyamide. PPE copolymers comprised of units derived from 2,6-dimethylphenol and 2,3,6-trimethylphenol are fully contemplated (col. 3, lines 24-25). The reference does not provide the information regarding the constitution of said copolymer, other than the fact that the 2,6-dimethylphenol is the major component (col. 3, line 22). Yonemitsu *et al.* discloses a general method for preparing PPE copolymer comprised of 50-98 mole % 2,6-dimethylphenol and 2-50 mole % 2,3,6-trimethylphenol (Example 1). This PPE copolymer contains 2,6-dimethylphenol as the major component, and therefore, one having skill in the art would have found it obvious to use the PPE of Yonemitsu *et al.* in the composition of Lohmeijer *et al.* to arrive at present claims 1 and 26. Such a substitution is obvious because it is suggested in the primary reference.

Use of a material having the property recited in claim 2 is obvious because Yonemitsu *et al.* states that the PPE copolymer exhibits an intrinsic viscosity of 0.55 dL/g in CHCl<sub>3</sub> at 25 °C.

Claims 3, 6, 10, 14, 16, 17, 19-21, 27, 29, and 30 are obvious in view of the disclosure of Lohmeijer *et al.* The reference teaches use of polyamide resins such as nylon-6 and nylon-6,6 (col. 3, line 34). The composition also contains citric acid, maleic acid, maleic anhydride, or fumaric acid as compatibilizing agent (claim 6). Example 1 shows that citric acid is used in an amount of about 7 wt%. An impact modifier such as poly(styrene-butadiene) or poly(butadiene-alpha methyl-styrene) is also added to the base resin (col. 4, lines 21-22) in an amount of 1-30 parts by weight (col. 7, line 45). The use of glass fibers, which are electroconductive, is mentioned (col. 7, line 55) as is the use of electroconductive carbon black (Tables A and B). The latter is used in an amount sufficient to confer volume resistivity of about  $10^4$ - $10^5$   $\Omega$ -cm to the molded article made from the inventive composition (see Tables). Other additives are contemplated (claim 14). The extrudate is pelletized (col. 8, line 28), and articles of manufacture containing the composition are claimed (claim 15). Thus, one would have found it obvious to use the components described above because their use in conductive polyphenylene ether-polyamide compositions is fully disclosed in Lohmeijer *et al.*

9. Claims 1-7, 10, 14, 16, 17, 19-21, 23, 24, and 26-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,843,340 to Silvi *et al.* in view of Yonemitsu *et al.*

The prior art of Silvi *et al.* reveals a composition comprising a polyphenylene ether resin, a polyamide resin, and electroconductive filler. The text does not disclose generic amounts of resins to be used, but the examples show a practical range of about 36-40 wt % a polyphenylene ether and about 44-51 wt % polyamide is adequate. Filler is added in an amount of 1.5-5.0 parts per 100 parts of resin (claim 11). Use of a copolymer of 2,6-dimethylphenol with 2,3,6-

trimethylphenol is contemplated, however, the reference is silent with respect to the constitution of said copolymer. Nonetheless, it can be concluded that 2,6-dimethylphenol is the major component.

Yonemitsu *et al.* discloses a general method for preparing PPE copolymer comprised of 50-98 mole % 2,6-dimethylphenol and 2-50 mole % 2,3,6-trimethylphenol (Example 1). This PPE copolymer contains 2,6-dimethylphenol as the major component, and therefore, one having skill in the art would have found it obvious to use the PPE of Yonemitsu *et al.* in the composition of Silvi *et al.* in order to arrive at present claims 1 and 26. Since the use of PPE copolymer is suggested by Silvi *et al.*, one having skill in the art would have expected such an embodiment to work.

Use of a material having the property recited in claim 2 is obvious because Silvi *et al.* state that PPE resins display an intrinsic viscosity of 0.25-0.6 dL/g (CHCl<sub>3</sub>, 25 °C) (col. 3, line 35). Furthermore, Yonemitsu *et al.* indicate that the PPE copolymer exhibits an intrinsic viscosity of 0.55 dL/g (CHCl<sub>3</sub>, 25 °C). Claims 3-7, 10, 14, 16, 17, 19, 20, 21, 23, 24, and 26-30 are obvious in view of the disclosure of Silvi *et al.* Use of a mixture of 12 % polyamide-6 and 36 % polyamide-6,6 is illustrated in Table 1 (entries 1, 4, and 5). Conductive carbon black and carbon fibrils are described in col. 4, lines 38-43. Impact modifiers (claim 4) are taught in col. 4, lines 5-15, with SBS triblock copolymer cited as a specific example (col. 5, line 34). This material is present in an amount of at least 5 wt % based on the final resin blend. Compatibilizing agents include maleic anhydride, fumaric acid, and citric acid (col. 4, lines 24-26) in an amount of 0.5-2.0 % of the final resin blend (col. 4, line 54). Melt blending is used to prepare the composition of the invention (col. 4, line 44), and according to the inventors, the



material is used in the fabrication of exterior body parts for automobiles (col. 1, line 12). In summary, one having ordinary skill in the art would have found it obvious to use the components described above because their use in conductive polyphenylene ether-polyamide compositions is fully disclosed in Silvi *et al.*

The reference is silent with respect to the volume resistivity of the final product, as recited in present claim 20. However, in light of the fact that the bulk electrical resistivity does not exceed  $10^5 \Omega\text{-cm}$  (claim 2), a reasonable basis exists to believe that volume resistivity is also less than  $10^5 \Omega\text{-cm}$ , as claimed. Since the PTO can not perform experiments, the burden is shifted to the Applicants to establish an unobviousness difference. *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). *In re Spada*, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990).

Finally, in reference to claim 23, the patentability of a product claim rests on the product formed, not on the method by which it is produced, absent showing of criticality of process steps. *In re Thorpe*, 227 USPQ 964 (Fed. Cir. 1985). Nonetheless, Silvi *et al.* indicates that it is convenient to introduce filler as a concentrate in part of the second portion of the polyamide (col. 5, lines 1-4). Thus, it would be obvious to one having skill in the art to follow the guidelines set forth in the reference.

10. Claims 8, 9, 11-13, 15, 18, and 22 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

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11. Claim 25 will be allowed when rewritten to overcome claim objections set forth in paragraph 1 of this office action.

12. The prior art made of record but not relied upon is considered pertinent to the Applicant's disclosure. The following references relate to conductive compositions.

U.S. Patent No. 4,566,990 to Liu *et al.*

U.S. Patent No. 6,352,654 to Silvi *et al.*

U.S. Patent No. 6,353,050 to Silvi *et al.*

U.S. Patent No. 6,469,093 to Silvi *et al.*


EP 0 866 098 to Silvi *et al.*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rip A. Lee whose telephone number is (703)306-0094. The examiner can be reached on Monday through Friday from 9:00 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu, can be reached at (703)308-2450. The fax phone number for the organization where this application or proceeding is assigned is (703)746-7064. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0661.

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November 3, 2002

  
DAVID W. WU  
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